



October 20, 2014

L-2014-321
10 CFR 2.201

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

Re: St. Lucie Units 1 and 2
Docket Nos. 50-335 and 50-389
Response to Apparent Violations in NRC Inspection Report
05000335/2014009 and 05000389/2014009; EA-14-131

Reference:

1. NRC Letter from Joel T. Munday to Mano Nazar dated September 24, 2014, "St. Lucie Plant – NRC Inspection Report 05000335/2014009 And 05000389/2014009; Preliminary White Finding And Apparent Violations." ADAMS accession number ML14267A337.

The NRC letter dated September 24, 2014, (Reference 1) provided Florida Power & Light (FPL) with three options to respond to the apparent violation of 10 CFR 50.9(a) that is being considered for escalated traditional enforcement. FPL chose to respond to this violation by providing a written response within 30 days that includes the reason for the apparent violation; the corrective steps that have been taken and the results achieved; the corrective steps that will be taken; and the date when full compliance was or will be achieved.

This letter's attachment provides FPL's response to the traditional enforcement violation included in Reference 1.

Please contact Eric Katzman, St. Lucie Plant Licensing Manager, at (772) 467-7734 if there are any questions regarding this response.

Sincerely,

A handwritten signature in black ink, appearing to read 'Joseph Jensen', written over a circular scribble.

Joseph Jensen
Site Vice President
St. Lucie Plant

Attachment

cc: NRC Region II Administrator
NRC Site Resident Inspector

IED1
NRR

30-Day Written Response

Apparent Violation of 50.9 with Two Examples

Apparent Violation:

10 CFR 50.9(a) requires, in part, that information provided to the Commission by a licensee or information required by the statute or by the Commission's regulations, orders or license conditions to be maintained by the licensee shall be complete and accurate in all material respects¹.

Contrary to the above, the licensee provided inaccurate and incomplete information as evidenced by the following two examples:

1. Licensee Event Report (LER) 05000335/2012-010-00, dated December 27, 2012, was inaccurate and incomplete in that it only discussed the flooding effects from a probable maximum hurricane (PMH), and did not discuss potential limiting conditions involving the duration of a precipitation event or the possibility of site pooling when determining the impact of the degraded and missing flood seals on water intrusion into the Unit 1 and Unit 2 RABs. Because the safety evaluation documented in the LER was based on non-conservative assumptions regarding flood inundation times, the LER did not identify that the Unit 2 missing or degraded flood seals represented an inoperable condition prior to the implementation of compensatory measures, and the LER did not identify that the charging pumps on Unit 1 would also have been impacted as a result of the flood barrier degradation. Additionally, the LER did not identify and evaluate the effect of the missing internal flood barriers in six conduits that penetrated the Unit 1 RAB wall. This information was material to the NRC in that it was used to determine the safety significance of the degraded and missing external flood barriers as well as to determine the appropriate NRC follow-up and response to the event report.
2. By cover letter dated November 27, 2012, the licensee submitted to the NRC a report entitled "Flooding Walkdown Report, FPL060-PR-001, Rev. 0, In Response to the 50.54(f) Information Request Regarding Near-Term Task Force Recommendation 2.3: Flooding for the St. Lucie Plant." The report was submitted in response to the NRC's "Request for Information Pursuant to Title 10 of the Code of Federal Regulations 50.54(f) Regarding Recommendations 2.1, 2.3, and 9.3, of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident," dated March 12, 2012. The NRC determined that the licensee's report was inaccurate and incomplete in that it failed to include the missing conduit seals on six conduits in the Unit 1 ECCS pipe tunnel adjacent to the RAB as non-conforming items. In addition, the licensee's report failed to identify that the Unit 2 missing or degraded flood seals represented an inoperable condition prior to the implementation of compensatory measures. This information was material to the NRC, in that it was used to determine

¹ Although there are ROP topics associated with the Fukushima flooding walkdown report and connected LERs, these aspects are being addressed by FPL's forthcoming response to the WHITE finding. Accordingly, this violation response and its accompanying corrective actions are solely focused on the inaccurate and incomplete information that FPL docketed concerning these issues.

compliance with the current licensing basis, the safety significance of the degraded and missing external flood barriers, and used to determine follow-up NRC response.

Background:

In March 12, 2012, the NRC issued a letter requiring a response under 50.54(f) regarding recommendations 2.1, 2.3, and 9.3 of the near-term task force review of insights from the Fukushima Dai-Ichi accident (Reference 1). As part of the NTTF 2.3 Flooding Walkdown response, FPL confirmed the use of the industry-developed, NRC endorsed, flooding walkdown procedures (Reference 2).

FPL completed the St. Lucie Plant flooding walkdowns in late 2012 and the walkdown results were submitted in FPL letter L-2012-428 on November 27, 2012 (Reference 3). The report concluded that permanent structures, systems, components (SSCs), portable flood mitigation equipment, and the procedures needed to install and or operate them during a flood were acceptable and capable of performing their design function as credited in the current licensing basis (CLB) with one exception. The exception was that the walkdown identified missing and degraded conduit seals in electrical manholes connected with the Unit 1 and 2 reactor auxiliary buildings (RABs). FPL assessed the impact of the degraded exterior flood protection on safety related equipment in the RABs and determined that the postulated flooding would exceed the UFSAR internal flood analysis for Unit 1, but not for Unit 2. All identified missing and degraded conduit seals within the electrical manholes were repaired. FPL submitted LER 2012-010 (Reference 4) for Unit 1 based on the Fukushima flooding walkdown results.

On January 9, 2014, a heavy rainstorm event resulted in externally driven rainwater entering the Unit 1 RAB. The subsequent investigation revealed two material deficiencies related to the original Fukushima flooding walkdown report.

The first issue was that the 2012 Fukushima flooding walkdown report was incomplete as it did not identify the degraded flood features that provided the water ingress route during the 2014 water intrusion event. The associated Fukushima flooding walkdowns were flawed in that they failed to discover six degraded conduits with missing seals in the Unit 1 emergency core cooling system (ECCS) pipe tunnel adjacent to the Unit 1 RAB exterior wall. FPL engaged an external agency to perform the Fukushima flooding walkdown program, but did not establish adequate contractor oversight. The vendor's inadequate review of the RAB exterior flood protection feature drawings led to the unsubstantiated assumption that the subject conduit penetrations were directly connected to electrical manholes and that any internal conduit seals would have been inspected as part of the electrical manhole inspection. However, these conduits were not connected to any electrical manholes and the unique configuration of these conduits was not recognized by the walkdown teams. FPL did not adequately challenge the walkdown scope and results. The non-willful failure to detect the degraded conduits' missing seals was not identified until the rain event of January 9, 2014.

The inclusion of these degraded conduits in the 2012 LER safety significance analysis would have resulted in a more safety significant condition for Unit 1.

The second identified issue was that the original FPL safety significance assessment of the degraded exterior flood protection features identified in 2012 was incorrect. A non-conservative assumption led to the subsequent under-reporting of the safety significance for the as-found conditions for both Units 1 and 2. FPL assumed that the design basis maximum flood level represented the worst case flooding scenario, as this condition produced the greatest driving head for water ingress to the RABs. Subsequent site water drainage was assumed to follow the UFSAR flood curves used to document the hurricane induced Atlantic Ocean and Indian River water levels and the flood design basis did not address the duration of a precipitation event or the possibility of site pooling. Accordingly, extended flood durations and site water ponding were not appropriately considered during the analysis. However, for both the January 9, 2014, event and the 2012 Fukushima flooding walkdown as-found conditions, it became apparent that the flood duration and site pooling were much more significant factors than the design basis maximum flood levels with respect to the degraded RAB flood features.

This flawed non-willful assumption led to the incorrect conclusion that Unit 2's postulated RAB flooding via the as-found degradation was not a reportable condition. The error was not identified during the safety significance assessment development and submittal of the resultant 2012 LER.

Violation Response:

1. The reason for the apparent violation or, if contested, the basis for disputing the apparent violation:

FPL does not dispute the apparent violation of 10 CFR 50.9. The reasons for the two examples cited in the apparent violation are discussed below.

The reason for the failure to find and report the six Unit 1 ECCS pipe tunnel conduits with missing flood seals was the vendor's inadequate review of RAB flood feature drawings and the unsubstantiated assumption that all conduits penetrating the RAB exterior wall were both associated with and inspected during the electrical manhole system walkdowns. Additionally, FPL provided inadequate oversight of the vendor walkdowns and did not adequately challenge the walkdown scope and results, leading to the inaccurate Fukushima flooding walkdown report.

The reason for the failure to properly assess the original 2012 safety significance of the as-found degraded electrical manhole penetration seals was that the St. Lucie flood design basis did not address the duration of a precipitation event or the possibility of site pooling. A lack of complete flooding design basis information led to FPL's introduction and

incorporation of erroneous knowledge-based assumptions during the interior RAB flooding evaluation. Therefore, the duration of site water ponding was not recognized as a significant driver for the postulated flooding events.

2. The corrective steps that have been taken and the results achieved:

With respect to the inaccurate Fukushima flooding walkdown report, FPL and the contractor performed cause analyses to determine where the governing walkdown processes were inadequate. The walkdowns were re-performed utilizing the following lessons learned:

- FPL directed and supervised all walkdown activities.
- Previous assumptions regarding inaccessible and restricted areas were reconsidered, with more areas walked down as a result.
- Walkdown results were reported on a penetration-by-penetration basis instead of an area-based report that addressed multiple penetrations.
- Maintenance and radiation protection personnel were dedicated to support the inspection efforts with access to radiologically controlled areas and to implement immediate repairs of any identified issues.
- The walkdown report was independently reviewed by a third party.

FPL compiled the Fukushima flooding walkdown results and the report was re-submitted (Reference 5) to correct the inaccurate information on the docket.

With respect to the inadequate analysis of the as-found degraded flood penetration seal safety significance, FPL challenged all the previous assumptions made prior to the January 9, 2014, heavy rain event in order to properly assess the significance of the actual and postulated internal water intrusion events. The safety significance determination process was iterative in nature and included:

- The ongoing development of flood and site water ponding durations as part of a site hydrology study that considered hurricane and precipitation events.
- The ongoing refinement of the RAB hydrology for internal flooding.
- The independent third party reviews for the PRA and hydrology studies.

St. Lucie Unit 1 LER 2014-001, revision 0 (Reference 6) stated that the January 9, 2014, event safety significance was still under evaluation and provided discussion that Unit 2's as-found condition during the 2012 Fukushima flooding walkdowns may also be reportable. As the flooding analyses continued, FPL concluded that the as-found 2012 St. Lucie Unit 2 electrical manhole condition was within scope of the reportable condition. St. Lucie LERs 2014-001, Revision 1 (Unit 1, Reference 7) and 2012-010, Revision 1 (Common Unit, Reference 8) included this information and provided updated safety significances for the reported conditions.

FPL docketed its intention to provide a revised Fukushima flooding walkdown report in Revision 2 of LER 2014-001 (Reference 9).

Finally, FPL revised both the St. Lucie 2012 Fukushima flooding walkdown as-found condition LER (Reference 10) and the 2014 rain event LER (Reference 11) to include the potential loss of safety function reporting criteria.

3. The corrective steps that will be taken:

The corrective actions described above resolved and corrected the inaccurate information that materially affected the NRC's ability to assess the safety significance associated with the 2012 LER for the St. Lucie Unit 1 and 2 Fukushima flooding walkdown as-found conditions; the 2014 LER for the St. Lucie Unit 1 RAB water intrusion event; and the 2012 Fukushima flooding walkdown report.

The St. Lucie Unit 1 and 2 UFSARs are being revised to incorporate flood and site water ponding duration information. These changes will be approved by December 1, 2014.

4. The date when full compliance was or will be achieved:

FPL established final compliance with 10 CFR 50.9(a) on September 26, 2014, with the submittal of the revised Fukushima flooding walkdown report (Reference 5).

References:

1. NRC letter dated March 12, 2012, "Request for Information Pursuant to Title 10 of the Code of Federal Regulations 50.54(f) Regarding Recommendations 2.1, 2.3, and 9.3, of the Near-Term Task Force Review of Insights from the Fukushima Dai-Ichi Accident" ADAMS Accession No. ML12073A348
2. FPL letter L-2012-241 dated June 11, 2012, "FPL/St. Lucie Plant's 90 Day Response to NRC Request for Information Pursuant to 10 CFR 50.54(f) Regarding Flooding Aspects of Recommendations 2.1 and 2.3, of the Near-Term Task Force Review of Insights from the Fukushima Dai-Ichi Accident" ADAMS Accession No. ML12172A143
3. FPL letter L-2012-428 dated November 27, 2012, "Response to NRC 10 CFR 50.54(f) Request for Information Regarding Near-Term Task Force Recommendation 2.3, Flooding" ADAMS Accession No. ML12335A201
4. FPL LER 05000335/2012-010-00, dated December 27, 2012, "Degraded Manhole Conduit Seals Bypassed External Flood Protection" ADAMS Accession No. ML13004A096
5. FPL letter L-2014-297 dated September 26, 2014, "Revised Response to NRC 10 CFR 50.54(f) Request for Information Regarding Near-Term Task Force Recommendation 2.3, Flooding"

6. FPL LER 05000335/2014-001-00 dated March 10, 2014, "Internal RAB Flooding During Heavy Rain Due to Degraded Conduits Lacking Internal Flood Barriers" ADAMS Accession No. ML14087A011
7. FPL LER 05000335/2014-001-01 dated May 12, 2014, "Internal RAB Flooding During Heavy Rain Due to Degraded Conduits Lacking Internal Flood Barriers" ADAMS Accession No. ML14142A008
8. FPL LER 05000335, 05000389/2012-010-01 dated May 12, 2014, "Degraded Manhole Conduit Seals Bypassed External Flood Protection" ADAMS Accession No. ML14142A009
9. FPL LER 05000335/2014-001-02 dated June 30, 2014, "Internal RAB Flooding During Heavy Rain Due to Degraded Conduits Lacking Internal Flood Barriers" ADAMS Accession No. ML14192A011
10. FPL LER 05000335, 05000389/2012-010-02, submitted via FPL letter L-2014-167 dated September 22, 2014, "Degraded Manhole Conduit Seals Bypassed External Flood Protection"
11. FPL LER 05000335/2014-001-03, submitted via FPL letter L-2014-295 dated September 22, 2014, "Internal RAB Flooding During Heavy Rain Due to Degraded Conduits Lacking Internal Flood Barriers"